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ABSTRACT

Drawing heavily on the speeches and discussions that took place at a League for Innovation in the Community College conference held late in 1977 in North Carolina, this paper discusses the problem of increasing productivity in community colleges. Although escalating costs and decreasing revenues over the past decade have given the problem of productivity sudden urgency, a consensus exists that community colleges would be greatly mistaken in settling for cost reductions that harmed their ability to deliver high quality educational programs. Several examples or models for stimulating productiveness are available, directed toward improvement of administrative, faculty and student performance. Organizational models which promote communication, delineate responsibilities and emphasize a common purpose in administrative structures are presented. Faculty productivity is shown to be augmented through differentiated staffing, staff development programs, and new instructional delivery systems. Grading systems, open-entry/open-exit systems, multimedia delivery systems and outreach centers are aimed at improved student learning. As there is overlap in these administration, faculty and student categories, the only single theme of all successful productivity programs is that cooperation and involvement are the prime ingredients. A list of institutions involved in these projects and a bibliography are appended. (TR)

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INCREASING PRODUCTIVITY IN THE COMMUNITY COLLEGE

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INCREASING PRODUCTIVITY IN THE COMMUNITY COLLEGE

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PREFACE

This topical paper is the result of a national conference on "Increasing Productivity in the Community College," held in Charlotte, North Carolina, from October 31 to November 2, 1977. The conference was sponsored by the League for Innovation in the Community College, an organization of fifty-one community colleges in eleven states committed to developing and sharing new ideas in education. Two hundred forty-four community college delegates--trustees, administrators, and faculty members, representing 102 colleges in twenty-four states--attended the conference, hosted by Central Piedmont Community College, to gain information and exchange views on boosting productiveness.

This paper is not, however, a compilation of the proceedings of the conference. Instead we have written our own report on the subject, drawing heavily on the various formal speeches and informal discussions that took place in North Carolina. We have credited the ideas and contributions of the participants by putting their names in parentheses wherever we felt the source was important. A complete list of the people cited is provided at the end of the paper. Naturally we assume full responsibility for any errors in fact or interpretation herein. We are indebted to Dr. Terry O'Banion, Executive Director of the League for Innovation in the Community College, for his help in developing this paper, and to Mrs. Lauraine Cook, Mrs. Sally Errea and Mrs. Carol Eriksen for editorial assistance.

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James C. Young

NO LONGER THE FAIR-HAIRED CHILD

Community college representatives have a new obsession: productivity. The identity crisis of the 1960s has given way to a frantic search for greater efficiency. Why this urgency, since it is widely known that education at the two-year college is much less expensive than lower-division education at four-year colleges and universities? Is productivity merely the newest fad? Or are there compelling reasons for this concern?

The answer to the last question is clearly yes. Although the community colleges still possess many virtues that endear them to the public and its governmental representatives--including flexibility, a relatively clear mission, diversified funding, an emphasis on teaching, a network of relationships with other agencies, a low profile, political sophistication, and competence in dealing with lifelong learning--they also have some faults and problems that make their operation more difficult and sometimes tarnish their golden image.

Some of these are external problems over which they have only partial control; others are internal. In the first category belong the changing demographic characteristics of American society. The continuing decline in the number of persons in the eighteen-to-twenty-one year age range is stimulating the competition for students among institutions of all types. Some small four-year colleges, for example, are now showing great interest in sponsoring lifelong learning, which the community colleges have tended to consider their domain.

Other competition comes from the private sector. Proprietary schools, offering concentrated, flexible training and effective job placement, threaten the less responsive, tuition-charging community colleges. The community colleges cannot assume that the millions of adults needing further occupational and general education will automatically choose them as the purveyors. Indeed, 57 percent of the adults presently receiving occupational training obtain it from their own industries. (Or, to put it another way: although community colleges serve four million of the nearly twelve million people in U.S. institutions of higher education, close to an additional seventeen million adults are going elsewhere to satisfy their

education needs.) To attract them, the two-year schools will have to develop better ways to prepare people for current job openings and pay more attention to anticipating future occupational job-market demands.

The colleges are also not doing enough to recruit women and minority-group students. There is evidence (Benson and Hodgkinson, 1974) that many of the so-called new students are simply older versions of the students the two-year colleges have traditionally served--that is, white males. The number of female students is growing, but much more could be done to bring them to college. The same goes for racial minorities, which despite the general demographic changes cited above are still increasing in the traditional college age bracket. Active, enthusiastic recruitment policies and programs are needed.

Another very significant external problem is the threat of government control and regulation. State legislatures are becoming unwilling to increase funding for community colleges, in response to public pressure to control tax levies. And politicians are decrying the loss of public confidence in higher education, demanding increased accountability and control--even though a recent poll showed politicians ranking far below educators in public confidence (Hodgkinson).

This control takes the form not only of budget cuts but of legislation that often requires the colleges to undertake all sorts of expensive activities. For instance, who will pay for new programs for handicapped students and barrier-free facilities? What will be the impact of social security tax increases and the recent raising of the mandatory retirement age to seventy? Will Congress reauthorize and fund vocational education acts? Congress has written a lifelong learning act filled with commitments not presently funded. There is, in addition, the continuing question and expense of complying with affirmative action laws. Further the high default rate on students' loans may not affect that program alone; Congress could strike back at higher education in an entirely different area. Thus, while fewer dollars come in, more go out; and the public, through its political representatives at all levels, is looking much more closely at what goes on in the community colleges.

Public scrutiny is revealing a number of internal faults with which

the colleges must deal. By promising all things to all people, they have often recruited beyond their ability to meet the needs of many newcomers. Vocational programs have sometimes been introduced without a clear understanding of future costs or conflicts over degrees, licensing, and accreditation. The increase in basic skills training has not been accompanied by full acceptance that such training is really college work. Evaluation programs have often failed to guarantee even minimal competency in vocational and subject fields. College committees cannot reach consensus on the role of general education and graduation requirements. And the rise of collective bargaining suggests to many continuing conflict and division.

In short, the community colleges are no longer the spoiled children of higher education, who have expected to receive ever more money with few strings attached. Now they must prove that their virtues exceed their weaknesses, that they are effective and efficient. If they do not, their cherished autonomy will be eroded still further by government bureaucracies. In fact, their very survival may be at stake if they fail to fulfill society's educational needs in a productive way.

Definitions

The obsession of community college educators with productivity cannot be easily explained. Productivity is a complex concept having several definitions and relating to a variety of institutional functions. Quite a few analysts equate productivity with efficiency, although this definition does not clarify very much until it is broken down into four components (Hodgkinson). The economic component involves turning out the right product to meet the demands of the economy. The second component is technological: effectively using raw materials and reducing waste in the educational process. Controlling and distributing the tax burden so that the cost of education is bearable and shared fairly composes the fiscal component. And the fourth component is reducing the social inequalities among various cultural groups. Unfortunately, all of these components are difficult to measure accurately, and even if educators decided that all four were desirable, they might find that increasing one kind of productivity could adversely affect another.

Other definitions stress the qualitative aspect--increasing students' learning (Cosand, Clarke). These are generally offered by those educators who find the words productivity and efficiency too suggestive of manufacturing. They feel that education is in great part an art, with numerous intangible results. Related to this view is the idea that productivity means fulfilling the community college mission of comprehensive post high school education, now jeopardized by colleges' pricing themselves out of the marketplace (Hagemeyer). But perhaps the definition that would satisfy the most people, because it combines both aspects, is this: "increasing the quantity and quality of learning and personal growth while being cost effective" (Clarke).

When these varying definitions of increasing educational productivity are stated in operational terms, seven elements emerge:

1. lowering the cost of producing a unit of education
2. increasing the learning of students
3. making the staff more efficient
4. making the community college more accessible to a wider range of students
5. cutting attrition rates
6. increasing administrative efficiency
7. managing the physical plant more effectively, including the use of energy

The difficulty in determining the criteria for measuring productivity, particularly when we are concerned with the rather vague product called learning, is probably the first barrier to increasing productivity. Budget managers for instance, can cite figures showing that larger classes are more productive, according to their criteria, but such efforts often encounter resistance based on fears about a decline in the quality of learning. How can we measure the psychological effects of having no contact with a teacher except in the company of five hundred others? Another barrier has to do with conflicting goals: a particular activity may be productive in one respect and not in another, and the educator has to decide which is more important. For example, outreach centers may be very good at attracting the "new student" to the community college but very costly in terms of instructing each full-time-equivalent student.

Losing sight of the complexities of increasing productivity is a real danger if productivity efforts are undertaken without careful analysis.

Methods

Since the concept of productivity includes so much, we can expect the methods for achieving it to be equally diversified. Specific models are presented in later chapters; here we want to examine some general approaches or types of effort. The following "survival tactics," although not all are directly related to productivity, should certainly further that goal (Hodgkinson):

1. Develop a clearly focused mission.
2. Create programs that clearly reflect that purpose and collectively add up to it.
3. Limit student diversity to some extent in order to achieve a unified campus community.
4. Establish good cooperative relationships with other institutions.
5. Establish a generally democratic governance structure which permits many people to exercise leadership yet permits effective decision making.
6. Set clear standards of performance.
7. Be cost effective.

In considering the resources that must be managed more efficiently, community college leaders should look at four types (Hodgkinson). The first is money; the colleges do still have dollars for making improvements, but they need to examine more carefully the many productive innovations that can be achieved cheaply or free. Second, human resources must be attended to dearly--people's time, energy and creativity are really the most precious college resources. Third, much can be done with psychic resources: rewards, status, and incentives. Finally, environmental resources should not be overlooked; emulating others' successes seldom works if the special environment of each college is not taken into account.

Better management of the people resources means adopting a governance system and a leadership style that encourage participation by all campus groups in working toward productivity (Priest). Managers should be people watchers, observing, recording, and rewarding talent. Although institutional measures of performance are important for accountability unpredicted, open-

ended creativity can be very productive (Priest). The very process of concentrating on productivity can awaken and motivate a variety of forces in its behalf.

The following pragmatic advice should be helpful to those who wish to be effective leaders (Priest): (1) do plan, but not so meticulously that you are locked into an inflexible system; (2) do set up systems of evaluations, but not so ironclad that they prevent spontaneous efforts; (3) do set up a reward system for those who contribute to productivity; but (4) don't alienate those who are not yet ready.

Another, more specific, route to productivity is the use of faculty aids in the form of paraprofessionals and technological devices (Hagemeyer). Instead of following the blue-collar model of working harder and faster, community college faculties should use their intelligence to become more productive. The time they save by not having to perform routine tasks could be spent in developing closer relationships with students. No aids are panaceas, of course, but if they free the teacher from mundane and repetitive chores, they should also open the door to acceptance and increased productivity.

Attempts to boost students' learning often do not consider forgetting and relearning. Some learning, including walking and talking, is consistently used and reinforced throughout one's life. Other knowledge, such as the geography of Brazil, may be mastered at age ten and erased completely by age thirteen. Lost information or skill can be retrieved much more easily and relearned much faster than new material can be grasped. Thus any evaluation of productive instruction would have to include measures of forgetting and relearning.

In analyzing the most productive ways to design a curriculum, educators might get some insight from an unexpected source: the organization of food services (Hodgkinson). In the first or "straight-line approach," every student progresses through identical stages, from salads to vegetables, main courses, beverages, and finally to desserts. This type of organization is efficient from the institutional viewpoint. In the "flexible access" approach, offerings are scattered and students can seek what they

want without going through a line. Although this system has proven effective in numerous cafeterias, most cafeteria workers felt that the flexible access system was immoral, offering too much freedom to eat desserts. They argued that students should be forced to pass the vegetable section so that they would select more nutritional food, even though studies have shown that more vegetables and fewer desserts were selected in the flexible system. Without identifying the vegetables and desserts in a college curriculum, and certainly without advocating an end to logical prerequisites, we suggest that community colleges might well consider the theory behind these approaches.

Traditional views of education, work, and leisure fit the first cafeteria model--education comes first, then work, and finally, upon retirement, arrives leisure. Education, work, and leisure are viewed in a triangular relationship, not as separate stages of development, but rather as options open to individuals at many points throughout their lives (Hodgkinson). The highest level of productivity thus would be the ability of community colleges to devise new approaches to education to meet new attitudes toward work, education, and leisure.

All the foregoing suggestions support our main goal--increasing students' learning. But more direct aim can be taken with more effective teaching methods. While methodology which is mechanical and systematic is the easiest to program and distribute to teachers, the best approach incorporates the personal and professional strengths of each teacher (Clarke). Among the possible learning systems are the following (Clarke):

1. The interactive dominant instruction system has clear goals and objectives, a specific instructor's role, and an objective plan for evaluation. Teachers and students work together in facilitating and evaluating learning. Audio, visual, and written media are employed.

2. The guide design system employs models of thinking relating to basic human problems. In groups of three to seven, students advance through various decision-making steps in tutorial style.

3. The systems approach involves pretests, sequenced learning stages, and preset levels of acceptable learning. It is very cost effective and lends itself to mechanization, but can diminish the teacher's role.

Schools and colleges that have successfully employed these models have had the acceptance and dedication of involved teachers, which were the real keys to their achievement. Teachers, more than designs, promote productivity. And their support can best be elicited by working toward changing methods step by step--not by a radical and sudden conversion.

Cosand argued that the best defense was a good offense: the community college must have a clear sense of its own mission and articulate it clearly to the public and other institutions. He noted that peculiar problems burden community colleges. Insufficient attention has been given to the employment needs of communities. New vocational technical programs are often begun without adequate quality control. More concern should be given to non-producers on the faculty staff. He criticized poor management in class scheduling, charging that classes offered only between 9 o'clock in the morning and 3 o'clock in the afternoon represented unjustifiable use of public facilities. He argued further that programs often continue after the need that created them ceases. Cosand was concerned that community colleges are playing a dangerous numbers game, increasing the number of students without any clear perspective on who should be served and why. At a time when the public is concerned with overproduction, can the community colleges simply try to attract more and more students? Is it not time that they made some hard choices about their future and their mission?

The following three questions could help community colleges put their mission into focus: Access for whom? For what purpose? At what cost to whom? Within these three questions, community colleges must also concern themselves with priorities. Cosand felt a balance sheet should be constructed so that all community colleges have a clear understanding of the implications of these three questions. It is the consumer that awaits the answers to these questions and to ignore them invites outside intervention.

Also the relationships among instructors, administrators, and facilities involve a multiplying effect: that is, the addition of one instructor could involve additional administrative and facilities costs; likewise. the addition of an administrator could increase the costs of

facilities and instruction. In short, community colleges must concern themselves with gearing down rather than gearing up (Cosand).

Conclusion

Certain commonalities emerge from the foregoing discussion. For one thing, all observers agree that the demand for productivity is a coming force that cannot be avoided or denied. Moreover, the community colleges' mission and perhaps their survival is at stake. Making their operations more efficient while offering an even better quality education is the essence of their task. Difficult as it is, the community colleges can and should meet this goal. They have, in fact, a moral obligation to do so.

First of all, we believe that the outputs of education cannot satisfactorily be compared with factory outputs. Education deals with human products, with feelings and attitudes, as well as measurable learning. We further believe that because teaching is an art as well as a science many fine teachers should not be plugged into mechanical or technological learning-production systems. And although it is the responsibility of community colleges to be efficient and cost effective, the real test of productivity lies in the amount and quality of learning that is produced rather than in the cost per unit of education. Finally, it should be noted that we are very much aware of the Hawthorne effect on productivity--that experimental change itself can produce higher productivity in the short run. (Hawthorne studied early factory assembly techniques, changing environmental factors, including room colors and adding music, and discovered that almost any change, even returning rooms to their original color and removing music, would increase productivity.) For an institution to improve its efficiency, people must be aware of their own realistic production capabilities and the many facets of the teacher-learner process.

The specific models and examples in the following chapters are not explained in detail. Readers interested in obtaining more information can contact the institutions involved (Appendix B).

ADMINISTRATIVE PERFORMANCE

There are as many different ways to organize community colleges and community college districts as there are colleges and districts in the nation. Perhaps this is as it should be, since each institution has unique features that require particular administrative structures. But no matter what arrangement exists, the following questions can provide insights regarding the organization's effectiveness and efficiency.

Does the administrative organizational scheme promote communication among all employees?

Communication only from the top down is not effective. Ideas must be shared at all levels if personal commitments by the staff to increasing productivity are expected. In the Dallas Co. Community College District, for instance, where the trustees had mandated increased productivity, District Chancellor Bill Priest met personally with large numbers of employees to elicit their ideas and their commitment to becoming more productive. A major benefit arising from such efforts to improve efficiency has been improved communication, communication based on a greater awareness of the need to produce more.

Do clear lines of responsibility and function exist in the decision-making process?

For employees in any organization to be productive they must know and accept their tasks and roles and know to whom they are ultimately responsible. Although there are numerous college organizational charts that purport to show how decisions are made, the real process is seldom so clear-cut. And in recent years the trend has been toward decentralization. For example, Miami-Dade Community College has developed a unique academic-economic model, in which decisions about budget development, expenditure control, instructional planning, and personnel selection are being made more often by those actually engaged in the activity.

Does a common institutional purpose exist for all employees to work toward?

The staff members should know why their institution exists and what its major goals are. Historically, a unique and positive feature of the

community colleges has been their clear and concise purpose. But today many of them are assuming a greater role in society than their mission justifies (Hodgkinson). At stake is the community colleges' popular support, for the public too must know the extent and limits of its institutions.

How competent and up-to-date is its management?

Changing relationships among administrators, faculty members, trustees, and state and federal bureaucrats call for sophisticated managers. Many community colleges that have done well under local control now face a burgeoning array of state laws and regulations. In addition, collective bargaining, increasingly available to public school employees, necessitates better trained and more astute college administrators. All of these things are closely related to productivity, and they all require exceptional managerial skills.

Organizational Models

Traditionally, community colleges have had campuses, in single- and multi-campus districts. Recently, however, "noncampus" institutions have been appearing. One such, under the direction of President Bernard Luskin, is Coastline Community College, which serves thousands of students through dozens of outreach centers and through television in the southern California area. The productivity of Coastline can be measured by the large number of "new students" it attracts. (See Lombardi, 1977, for a detailed description of Coastline's governance arrangement.)

Another, although less radical, departure from the traditional has been proposed by De Anza College in California. The standard structure, with which most readers are undoubtedly familiar, is shown in Figure 1. In this set-up the college president is five steps removed from the bottom of the hierarchy. Though this structure implies order, it does not always involve faculty members in decision making. In De Anza's model (Figure 2), the president is one step closer to the faculty and thus slightly more accessible when real issues begin to bind.

Other new models have resulted from collective bargaining, which complicates administrative productivity efforts, especially in states undergoing the transition. In California the collective bargaining law defines

FIGURE 1
TRADITIONAL ORGANIZATION CHART FOR A COMMUNITY COLLEGE

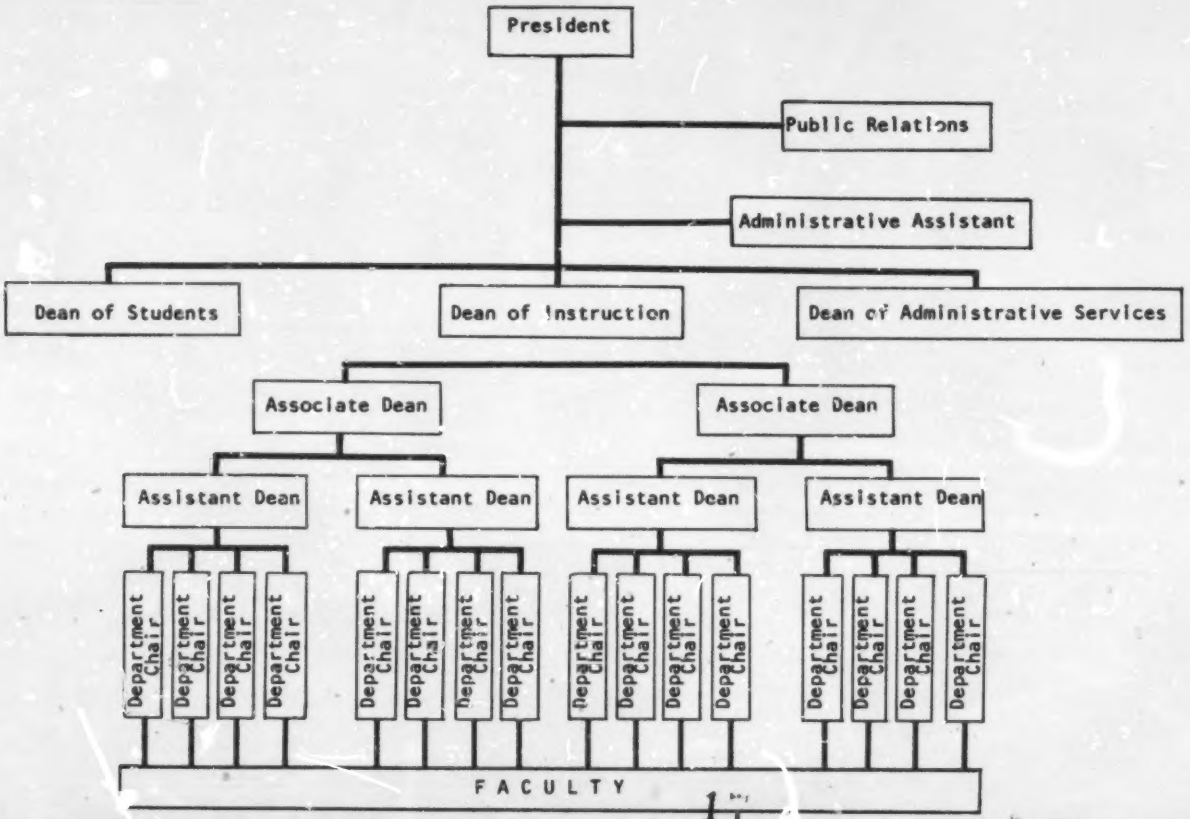
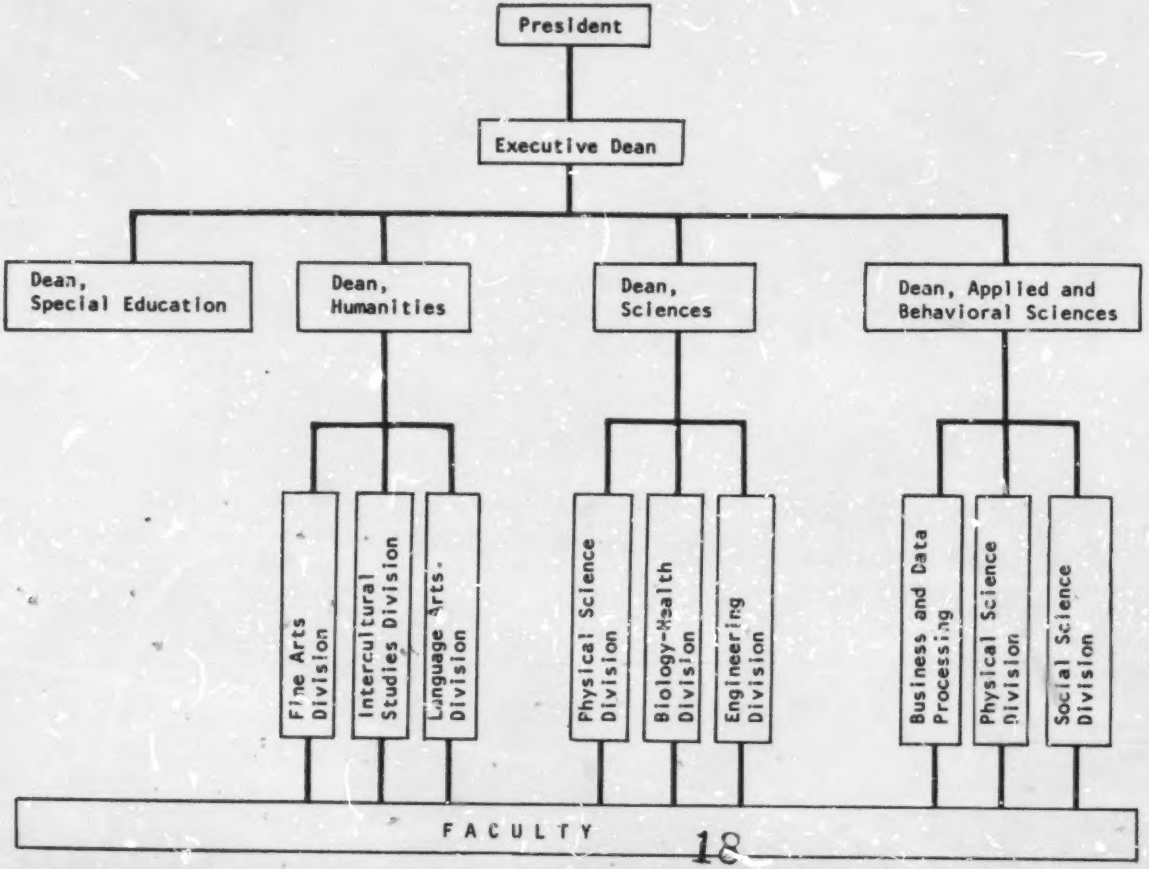


FIGURE 2
A PARTIAL ORGANIZATION CHART FOR DE ANZA COLLEGE



four groups of employees: (1) managers, (2) confidentials, (3) supervisors, and (4) bargaining unit members. Many in-between jobs are not specified, including those of department chairpersons. And some community college districts, such as Los Rios in Sacramento, have added assistant deans as managers, thus radically changing the role of department heads.

Naturally, any organizational model chosen by an institution must meet its own unique characteristics, but productivity will be advanced no further than improved communication allows.

Community College Governance

As the first section has shown, the governance of community colleges becomes more complex with every passing year. Bureaucratic levels multiply in an attempt to cope with the many conflicting influences--employee groups desiring more power; trustees unhappy about encroachments into their domain as the local overseers of community college education; federal and state legislators, offices, bureaus, and commissions seeking control in the name of efficient planning and evaluation; community groups and accreditation agencies voicing their views on proper and productive education. But administrators are often caught in the middle of this cross fire. If the community college is to become more productive, someone must make the necessary decisions. Who shall it be?

Legally, of course, such decisions are the prerogative of governing boards or state legislatures. Effective decisions, however, require widespread involvement and acceptance. Historically, academic senates have worked with administrations in recommending policy to trustees and in providing direction for each college. But this cooperative spirit has been eroded by collective bargaining and the new power structure resulting from it. Posturing among the groups is time consuming and generally nonproductive; and potential conflicts loom large amid power plays and struggles for dominance. All this internal strife clearly handicaps efforts to increase productivity.

Likewise, the burgeoning governmental regulations, which we've already mentioned, complicate and restrict such efforts. The money and paperwork required just by the following federal mandates are staggering: (1) barrier-

free facilities for the handicapped by 1980, (2) social security tax increases, (3) changes in retirement status, (4) unemployment insurance for teachers, (5) vocational education allocations, (6) desegregation in higher education, and (7) the elimination of sex bias.

The bureaucratic mazes that must be negotiated to comply with state and federal laws are similarly mind boggling. An outstanding example comes from the California Community College Capital Outlay Program. When the Federal Economic Development Administration made millions of dollars available to public agencies for construction projects, California community college districts in need of facilities started the application procedure. For the Kern Community College District in California, approval from the following had to be included in the application papers:

1. The departments of the college or users of the proposed facility
2. The District Chancellor's Cabinet
3. The Board of Trustees
4. The Office of the State Architect
5. The State Fire Marshall
6. The State Office of the Handicapped
7. The Kern County Council of Governments
8. The State Office of Historic Preservation
9. The Facilities Planning Section of the California Community Colleges
10. The State Department of Finance
11. The Environmental Impact Report of the State Secretary of Resources
12. The Kern County Air Quality Control Board

Although such bureaucratic structures have laudable purposes in many cases--protecting various public interests, for example--they generally negate both effectiveness and efficiency. Thus, many improvements in productivity lie beyond the colleges themselves.

Professional Development

Dealing with these complex internal and external influences is a difficult juggling act, one for which many administrators are unprepared. Not only must they try to meet the needs and demands of the different constituent groups, they have to manage multi-million-dollar budgets,

supervise the work of hundreds of employees, stay abreast of laws and regulations, and provide information to the governing board to assist in decision making. To do all this and still maintain a reasonable degree of sanity requires more than teaching experience in a community college. Thus, when faculty members are moved into administrative positions, they must be carefully trained.

One worthy effort to provide training not only for former teachers but for all administrators was begun in April 1976 by the Higher Education Management Institute (HEMI). With funding from the Exxon Education Foundation, the Institute designed, created, tested, and disseminated a management development program. Its intent was to create materials and procedures to improve the overall administration of higher education institutions while addressing the training needs and career plans of individuals.

A preliminary study showed that colleges and universities have very little in the way of inservice programs. And only a dozen institutions had people assigned full time to the task of management development. Still, HEMI found extensive training programs in the private sector and was able to adapt some of their best resources, including an excellent overview of the theories of organizational functioning and human effectiveness.

Using the HEMI program, the Dallas Co. Community College District has moved ahead to district management internships, a way to identify those employees with innate managerial skills. The internships include the completion of study modules for managers. Another useful project has been undertaken by the Office of New Dimensions in the Los Angeles Community College District, which offers a series of contemporary seminars to administrators, faculty members, and classified employees. Community college leaders are recognizing more and more that management training programs are positive steps toward increased productivity.

Leadership Style

A central element in such training programs ought to be an examination of various modes of management or leadership. A pertinent study was sponsored by the League for Innovation in the Community College and Battelle's Center for Improved Education (Hitt, 1973). Project Usher, as it was

known, analyzed the management models of Brookdale, Cuyahoga, and Coast community colleges. Although the autocratic model proved to be efficient, because of its clear-cut responsibilities and centralized control, it paid too little attention to employees' concerns and dimension. The second model, the laissez-faire approach, allowed each person to "do his own thing," creating personal contentment but little productivity. The third model in Project Usher was drawn along classical labor-versus-management lines. This conflict model, more suitable to collective bargaining, has the problem of creating division in places where harmony should exist.

William Hitt's study found little to praise in these models, concluding that a participative organization based on involvement and accountability was superior to all three. True representation is suggested by the study: A leader designated by the management is to work closely with representative staff members to determine institutional goals, recommend policy, and suggest alternatives for action or problem solving. This model differs from a purely democratic one in that the designated leader has final authority to make the decisions. Nevertheless, the following benefits were said to result from what might be called a participatory democracy: (1) better educational programs for students; (2) more effective support programs; (3) a rational basis for the allocation of resources; (4) improved staff development and staff morale; (5) improved communication; and (6) a means for demonstrating accountability. Thus, real productivity stems from discussions in which staff members' ideas are really heeded (Priest, Hagemeyer). Getting employees involved, not handing out directives, is the key to successful leadership.

Information Management Systems

One of the more difficult tasks in community college administration is dealing with the flood of data from all sources. To cope with it, the Maricopa County Community College District in Arizona created an Educational Planning Information Center (EPIC) which helps administrators make decisions based on data about the community, students, programs, staff members, facilities, and costs (Morrison). By receiving better information, decision makers should be able to consider alternatives instead of just render crisis-evoked judgments. The heart of the project is detailed information on the full-

time-equivalent costs of each kind of expenditure and each course of every college department. An institutional renewal feature is also incorporated.

Another notable project was undertaken by the Peralta Community College District in Oakland, California. The District developed a computerized course-and-program analysis that provides a five-year history of average daily attendance and average class load and gives information on teachers' weekly student-contact hours, the enrollment at each census, and semester retention rates.

But probably the best-known effort is the Planning Program Budgeting Systems (PPBS) touted in the late 1960s as the tool to effectively and efficiently manage colleges. This thrust came from the aerospace industry, which used PPBS to send men to the moon; however (as Hodgkinson pointed out), PPBS also produced the Edsel. And despite all the lip service, there is not much evidence that PPBS is an efficient technique for educational management. What works best is an eclectic mixture of tools, perhaps including management by objectives, zero-based budgeting, input-output measures, and models and simulations (Slicker). The choice depends on the structure and needs of each institution.

Nevertheless, the following guidelines should prove helpful in developing any effective management information system.

1. The information system must evolve from a sound philosophical base.
2. Basic information relating to budgets and expenditure control, student services, staff members, course and program data, and plant and space utilization must be systematically organized.
3. The college staff must understand the purpose for the information system, provide help in its development, and have access to the information generated, or decisions based on the data will be continually challenged.
4. Systemization should not prohibit needed flexibility in the organization.

With the ever-growing governmental bureaucracies demanding more reports and information, supposedly to assist overall decision making, community colleges run the risk of yielding more power to higher levels of government. Since control of data leads to control of decisions,

local control of community colleges can be undermined simply by state and federally mandated information systems.

Basically, information management systems in community colleges have four major components. The first comprises monetary accounting systems, including budgeting and control. The second includes all information on the screening and selecting of personnel, along with current employee files. The system for keeping student records is the largest single user of computers. Complete records on attendance, classes, grades, financial aid, and career choices must be readily available to students. The fourth management information system has to do with facilities and equipment.

Attempts are being made for the sake of productivity to interface the four information systems so that administrators will know better what facilities will be needed to accommodate a certain number of students, class sections, and instructors. On a statewide basis, for instance, the Chancellor's Office of the California Community Colleges is attempting to integrate student personnel data, long-range facility plans, and required vocational education information. It is too early to tell whether the effort will benefit all California community colleges or simply result in more bureaucratic red tape and greater state control.

Academic Calendar

Another important element in productivity, which may be overlooked, is the academic calendar. The time and manner in which faculty members are in contact with students for instructional purposes are the very heartbeat of the institution. Three basic plans are common in the nation's community colleges. Two regular semesters of fifteen to eighteen weeks, the first of which starts in early September and ends in mid-January, used to be the traditional school calendar; but according to a recent survey, only seven percent of the nation's colleges now follow this plan. The quarter system has been adopted by many institutions, and an early-start, two-semester academic calendar is gaining popularity. The major purpose of the latter is to eliminate unproductive instructional time after the Christmas holidays and to conclude finals before the holiday recess. About half the institutions of higher education in America have adopted this approach.

A fourth option that is receiving increasing consideration is the 4-1-4 calendar (Burris). The one-month "intersession" is advantageous because it (1) gives an opportunity to offer short-term courses that interest many students, (2) provides time for staff development and instructional development, (3) assists in counseling, and (4) eliminates instruction after the Christmas holidays, thus allowing students greater flexibility in transferring to four-year institutions. After a year's experience with this calendar, Cosumnes River College in Sacramento decided it could serve the public more effectively by offering a greater variety of classes during the intersession and by making extended efforts to attract nontraditional students. The faculty also initiated more staff development projects in this month.

Facility Design and Management

Administrators can seek greater productivity from their facilities not only by means of the academic calendar but also through efficient use of resources. With the skyrocketing utility bills associated with gas shortages and electrical "brownouts," and in some areas total blackouts, community colleges must consider alternative energy sources for facilities. The League for Innovation has taken a lead in disseminating information about energy-related projects, and several of the League colleges have instituted cost- and energy-saving systems.

Orange Coast College in California has installed an IBM System 7 computer control mechanism for air handlers. This device monitors electrical use and demand and equalizes the amount of electrical energy needed for the campus at any given time. Lane Community College in Eugene, Oregon has an economical system of heating water--water is heated at night during low electrical requirement times, stored in large insulated tanks buried underground, then used during the day (Schafer). Since Lane College uses only electrical energy, the savings in demand charges have been substantial.

Many colleges report that the systematic maintenance of buildings on preplanned schedules is cost effective: expected repairs cost less and there are fewer emergency repairs caused by major deterioration. State and federal regulations for alternative energy systems are in the works, and they will undoubtedly affect new construction. Certainly, any community

college interested in productivity will keep a sharp eye on energy-saving techniques, not only for anticipated projects but also for existing buildings.

FACULTY PERFORMANCE

Community colleges are proud of being known as "teaching colleges," and professional salaries claim the lion's share of their expenses. It is to be expected, then, that both quantitative and qualitative measures of productivity should consider faculty performance. Since productivity is sometimes viewed by faculties as management's effort to hold down salaries and boost class sizes, the most successful productivity efforts are those that are able to enlist the aid and support of faculty members.

Faculty productivity can definitely be augmented in at least three ways: through differentiated staffing, staff development programs, and new instructional delivery systems. More uncertain are the effects of trying to increase faculty workloads and engaging in collective bargaining. This section considers all these factors, discussing the issues and presenting a number of models.

Differentiated Staffing

Because community college faculties are too often burdened with clerical and semiprofessional duties, many colleges are expanding the use of paraprofessionals, with beneficial results. The fact that the paraprofessionals often are themselves community college graduates allows institutions to benefit from their own production. The successful use of such aides requires a careful analysis of the various components of educational and instructional activities and a matching of appropriate skills with each component. The key element, however, is developing cooperative and supportive interactions among the professional staff members, paraprofessionals, and students. In this situation, education becomes a team effort, and if the team operates smoothly, all aspects of the community college program can benefit.

At Oregon's Lane Community College, paraprofessional aides in the Math Resource Center have helped increase productivity by providing information and performing numerous clerical duties. Assistants, usually students from a nearby university, provide individual tutoring for students. Instructors at the Center oversee the aides and assistants and are responsible for preparing tapes, video cassettes, and other teaching materials. Not all of Lane's mathematics instructors participate in the Center's activities

because the school recognizes that enthusiasm, not compulsion, is the key to the staff's success.

In at least one respect, the Center compares favorably with the traditional classroom--in the 1976-77 year the Center's personnel cost per FTE student was $304, whereas the cost in the regular program was $832.

Unfortunately, however, this economic advantage is offset by a poorer showing on other productivity measures. The course completion rate, for instance, was 54 percent for the Center's courses compared with 67 percent in the traditional courses. Neither the quantity and quality of learning nor learning retention rates have been measured. The Center's staff feels that it can improve the course completion rate by developing a more supportive and personal atmosphere for students, and efforts are currently under way to build morale and motivation.

Brookdale Community College in New Jersey has made an institutional commitment to differentiated staffing, employing one paraprofessional for every four regular faculty members. There are two levels of "learning assistants," one requiring an A.A. degree and the other a bachelor's degree. Learning assistants do no classroom teaching, but they tutor, provide laboratory assistance, and help students who are receiving self-paced instruction. Student development assistants help with student activities and assist counselors in the counseling and career center. Without sacrificing quality, Brookdale has maintained a higher student-teacher ratio than have other New Jersey community colleges. (The ratio is 28:1 at Brookdale and 20:1 at the other colleges.)

Staff Development Programs

The great boom of the 1960s is over, and today most community colleges employ a stable and slowly changing staff. Although most colleges still provide the traditional modes of staff development--support for sabbatical leaves and professional conferences, and salary increases for further education--there is more that can be done.

The Los Angeles Community College District, for example, is building a comprehensive staff development program for a multi-college district. Each of its nine colleges continues to offer grants, pay for conference

attendance, and give sabbatical leaves. But the real action is in the district's office for "New Dimensions," which provides a number of staff development programs. Thirty-two grant applications for 1977-78 were screened by a committee of persons outside the district, including students, faculty members, administrators, and community representatives. Thirteen grants were approved, ranging from a "Faculty Effectiveness Training" program at Los Angeles City College to a seminar series at Los Angeles Trade-Technical College entitled "Upgrading Competency Skills of New Administrators." New Dimensions also arranges a yearly "Chancellor's Colloquium," bringing together national authorities and district personnel to discuss significant issues.

In addition, New Dimensions offers more than sixty "Contemporary Seminars" designed for a variety of campus groups. The three-hour sessions deal with such topics as the special needs of adult students, stress management, and reading improvement. Administrators can attend seminars on how to manage their time and develop better relationships with their secretaries. Teachers can call for seminars specifically geared to teaching and professional development. There are also seminars for the classified staff, on such subjects as improving office climates and planning careers.

A Center for Professional Opportunities is being developed by New Dimensions to assist faculty members, administrators, and others who want to increase their own professional portfolio of skills. Career information and placement assistance will be provided for individuals seeking promotions, reassignments, or positions in other college districts or other employment fields. The Center will also arrange special short-term transfers and provide unique assignments that offer personal and professional development. The many activities of New Dimensions demonstrate the growing awareness of the need for well-planned community college staff development programs.

De Anza Community College, in California's Foothill-De Anza Community College District, has the philosophy that staff development, for both managers and staff members, should be a basic college function. An office for staff development has been created, headed by a full-time professional, to promote an integrated college-wide program. The staff developer helps divisions and areas make plans, chairs a staff development advisory committee, publishes

a newsletter on developmental activities at De Anza and other colleges, and evaluates the various aspects of the program.

This professional leader has been a real spur, but a large part of De Anza's success is due to the extensive participation of all the constituent groups on campus. Advisory committees play a major role in assessing staff development needs, approving developmental plans, and evaluating results. When development projects emanate from the interest of the staff itself, then the likelihood of positive outcomes is much greater.

De Anza has a wide array of developmental activities. Like New Dimensions, De Anza offers numerous workshops and seminars on topics such as telephone procedures, conceptual blockbusting, meditation, and assertive communication. Also included in the comprehensive professional growth policy are travel, publication, research, business employment, and organizational leadership. Faculty members are required, for salary advancement, to complete the equivalent of at least three semester units of college work every three years. A classified staff member can achieve a professional growth award of $500 each year by successfully completing a developmental program. In addition to promoting the professional growth of De Anza's own staff, the Staff Development Office conducts programs for other school systems in the area.

In Florida, the state legislature annually appropriates funds for staff development equivalent to two percent of the total budget for all community colleges. To be eligible for funding, each institution must submit a plan. Santa Fe Community College in Gainesville has used these funds to implement a program having three goals: (1) to stimulate new ideas, (2) to strengthen existing assets and abilities, and (3) to develop programs. Each year every faculty member designs a list of performance objectives that contribute to departmental and institutional goals. Santa Fe's Office for Development, headed by a dean, also offers special projects and creates programs, functions that usually involve staff development.

Santa Fe does not permit any developmental funds to be used for continuing graduate education. It is the philosophy of the college that funds can better be spent on projects designed for the community college than on traditional graduate educational experiences at universities. Indeed,

staff development has become such a vital and integral part of the college operation that it would probably continue even if state support were withdrawn.

New Forms of Instruction

The attempts of many community colleges to develop new modes of instruction fall into two major categories of productivity: finding more efficient ways to present existing curricula to current students, and creating new programs and courses designed to attract and teach "new students," those so-called nontraditional students who are slowly finding their way into the two-year colleges. Considerable effort is being devoted to both of these goals throughout the nation.

The philosophy of Coastline Community College, which we mentioned earlier, is to take instruction to the people, and especially to a new clientele. It does so in 108 various community locations and by the use of television. Seven thousand new students have enrolled in TV courses and classes offered at its 108 community locations. The participants are considered new students primarily because enrollments at the two other colleges in the Orange Coast District have maintained their steady growth.

Moraine Valley Community College in Illinois concentrates its new teaching methods in a special Subdivision for Non-Traditional Learning (NTL). Autotutorial courses use cassettes, videotapes, films, scripts, and programmed books. Assistance meetings are scheduled on various evenings and Saturdays to help students, and individual conferences can be arranged. NTL also provides directed study courses, composed of a 90-minute seminar every other week and two conferences on individual progress. Other options include flexible scheduling--seventeen group meetings, each of which is offered at several times--and individualized instruction, involving telephone contacts, individual conferences, and some scheduled seminars.

The Non-Traditional Subdivision at Moraine Valley also manages television and newspaper courses, weekend classes and correspondence courses. It is involved in the College Level Examination Program (CLEP) and is beginning an external degree program, which will utilize all the various approaches mentioned as well as an Assessment of Prior Knowledge. Credit will be

awarded for previous knowledge that can be evaluated through written, oral, or manual tests.

Aimed primarily at the adult working student, NTL also embraces adult basic education, the development of general education classes, and English as a Second Language. A study skills center aids many students who need special help. A recent report reveals that retention rates were highest in courses where students had fairly frequent contacts with teachers and peers and lowest in academic courses with a largely theoretical content.

Both Coastline and Moraine Valley are concerned with better ways to increase students' learning, but it is noteworthy that their underlying philosophy is to serve students not presently being served.

There have been few large-scale attempts to assess the productivity of experimental techniques like those described above in comparison with traditional instruction. One study, sponsored by the League for Innovation (Berchin, 1972), compared three instructional modes (large-group, audio-tutorial, and programmed learning) with conventional teaching in classes of 40 or less. The study concluded, not surprisingly, that large-group instruction was the least costly, but the amount of learning that students' retained varied widely among the institutions studied. Individualized programmed instruction was also determined to be less expensive than conventional courses, although more costly than large-group teaching. The audio-tutorial mode was found to be the most costly. No clear-cut conclusions regarding the quality of learning emerge from the study, although data on faculty perceptions indicated that the large-group, programmed, and audio-tutorial modes were all more effective than the conventionally organized courses.

Faculty Assignment Policies

No factor is more clearly related to community college cost efficiency than assignment policies related to faculty load. Yet the concept of workload is not easy to pin down; the methods and formulas used to define it are complex and vary widely. John Lombardi (1974) researched for the ERIC Clearinghouse for Junior Colleges the problems in determining faculty workloads, noting that new instructional techniques have produced widespread differences among community colleges regarding faculty load. In general,

however, Lombardi found no evidence that technological aids were increasing either faculty load or productivity. He pointed out that decisions on load policies, once the unquestioned domain of trustees and administrators, are increasingly being influenced by state legislatures and teacher organizations. Lombardi sees little possibility that faculty load, in terms of in-class hours, will be increased, but does suggest that cost benefits may be derived from augmenting class sizes. Finally, Lombardi maintains that for the next five years, collective bargaining will be the major influence on workload.

Collective Bargaining and Faculty Productivity

This subject stirs great interest among community college educators but little consensus. Generally speaking, those who fear collective bargaining as an obstacle to productivity belong to institutions not subject to collective bargaining laws, whereas its strongest support tends to come from individuals experienced in bargaining negotiations. But whatever the views, everyone recognizes that collective bargaining is an increasingly important factor in college operations and that its full impact on productivity remains unknown.

Administrators with negative attitudes toward bargaining state that it is a major drain on their time (Smith). Furthermore, they warn that faculty unions are mostly concerned with increasing salaries and decreasing class loads, both of which have the effect of increasing costs without guaranteeing any increase in productivity (Priest).

Most analysts agree, however, that collective bargaining is inevitable and that continuing opposition probably takes more time than would the actual bargaining process (Koeller). Resistance also tends to harden feelings during the organizational stage, feelings that impede productive bargaining in the future. Administrators who recognize the benefits of unionization instead of fighting it will be the most successful. Although bargaining is often time consuming, a union can also save administrators time because it gives them a single source of faculty power to be dealt with. It can serve as a monitoring device as well, revealing strengths and weaknesses in the administrative chain. As a sort of forced benefit, the advent of collective bargaining also requires administrators to really

know their trustees, to ascertain how committed they are to increasing productivity (Smith). Moreover, by placing managers in a situation calling for political skills, it builds their competence.

Although the early years of negotiation may be unproductive, union leaders can be persuaded to accept reasonable productivity measures (Koeller). Naturally, neither side at a bargaining table will reject productivity as a desirable goal; the rub is the definition, which itself could be the subject of many negotiating sessions. When bargaining is limited to salaries and class sizes, it is unlikely to produce measurable gains in productivity. But insofar as it clarifies and legitimates administrative-faculty relationships and underwrites a common definition of productivity, it can make all members of the institution more productive.

Gaining Faculty Support

Faculty members must feel they are partners in productivity efforts, not victims. To achieve this end, administrators must develop programs to inform all personnel of the importance of efficiency and to engage the faculty from the very beginning. And of course rewards are as vital as involvement. The Dallas Co. Community College District discovered the value of stimulating faculty productivity not through individual contracts but with departmental, divisional, and college awards. Delta College, Michigan, has addressed productivity in its Academic Senate, a body representing administrators, faculty members, and students. In its criteria for faculty advancement, productive activity for the college other than instruction is included with years of service, teaching effectiveness, and educational growth. Some colleges have developed special leave policies to encourage instructors in declining fields to retrain in needed areas. Again, the extent of faculty acceptance of such measures is directly proportional to the amount of faculty involvement in planning them.

Often faculty morale has been undermined by community colleges forced to make painful budget cuts. This factor adds to the difficulty of winning faculty support and good will for productivity efforts. It is crucial for the faculty to understand that productivity is more than budget cutting, that it offers a return to them, to all members of the college community,

and indeed to society at large. More than a case of management's directing efficient labor, productivity in the community college requires the combined efforts of all.

STUDENT PERFORMANCE

In the last analysis, attempts to become more productive are meaningless unless they contribute to the single goal of education: student learning. No one would dispute that statement, yet relatively few productivity models specify this objective. Quantitative and qualitative measures of learning have always been controversial, and it is obvious that no single measurement system will suffice to prove or disprove the effectiveness of efforts to improve the efficiency of the teaching-learning process. All the same, any measurement is better than none, and for all the complexities involved, it is absolutely necessary that all work toward productivity be aimed at improved learning.

Grading Systems

Traditionalists still defend a grading system that somehow ranks students as excellent, good, satisfactory, poor, and failing. This system, they argue, encourages competition, or at least recognizes that competition is inherent in society and prepares students for the tough world beyond the school. The criteria used to differentiate students are less important than the mere fact that there is only so much room at the top, and it is assumed that the competition for top grades will automatically maximize learning. Of course a number of students will fail and fall by the wayside, but some professionals assert that such failures are better off out of the college system in jobs suitable for them. Traditionalists base their claims on philosophical assumptions about human nature and a belief that colleges were better in the past. The traditional view seems to be buttressed by reports of declining entrance test scores among entering college students.

Modernists charge that the standard grading system rewards only a few and punishes most students. They are impatient with the fuzziness of criteria and wonder why all students could not receive As if they achieved the specified level of competence or knowledge. Often, modernists defend learning contracts, consisting of numerous goals and exhaustive lists of behavioral outcomes. But in their continuing argument with traditionalists, the modernists face the same embarrassing lack of

sufficient data to prove that their assumptions have a more realistic foundation.

In addition to the attitudes of modernists, other social pressures have influenced measurement and grading practices. Student unrest in the late 1960s, stemming from an unpopular war and internal social disorders, brought severe protests against a grading system based mainly on tradition. A flood of new students who were not in the top third, and often not in the top half, of their high school graduating class entered colleges. Older students were matriculating too, expecting to improve their education. All these pressures seemed to make traditional grading obsolete at best and punitive at worst.

The late 1960s and early 1970s witnessed efforts by colleges to come to grips with the new times and new students. The major response was a move to "nonpunitive" grading, keeping the A, B, C, and D grades (however differentiated) but eliminating the punitive F. In addition, students were generally allowed to withdraw without penalty later and later in the term and even encouraged to take incompletes if they needed more time to complete their courses. The results of such actions have not been encouraging. Attrition rates in community colleges have soared, and public criticism is now focusing on the issue of "grade inflation." Community colleges now are seeking new ways to solve these old problems. Although, again, convincing data are in short supply, the colleges seem to be genuinely interested in trying new learning systems rather than just tinkering with grading procedures. Several of these systems are described below.

Open-Entry, Open-Exit Systems

Nearly every institution in the League for Innovation in the Community College now has some form of an open-entry, open-exit program, generally in the subjects of mathematics, business, and reading. Lane Community College's Math Resource Center, mentioned earlier, has such programs for college algebra as well as for specific applications in the trades and in industry. Using many audio and video tapes, programmed study guides, and tutors, Lane accommodates a thousand students each quarter. The Center is open all year from 6:00 a.m. to 8:30 p.m.

As we noted earlier, fewer students complete the open-entry program than finish conventional classes in the mathematics department, although the program compares favorably in costs. To reduce attrition, the Center is making a concerted effort to get to those students in difficulty as soon as they slip off the track, and through letters and telephone calls the staff is offering more unsolicited assistance. Lane's goal is to boost the current completion rate of 52 percent to perhaps 80 percent.

The Kern Community College District has moved determinedly toward open-entry, open-exit programs in business, mathematics, and reading. Five hundred business students at Bakersfield, Porterville, and Cerro Coso colleges schedule themselves in typing, shorthand, office machines, and secretarial training courses. Using time clocks and punchcards, students can check into labs from 8:00 a.m. to 10:00 p.m. daily. Most audiotutorial materials are in a slide-tape format. The mathematics program in the Kern District is much like the one at Lane Community College, and it includes remedial mathematics, preparatory algebra, and college algebra. Unlike the Lane Center, however, the Kern program has an attrition rate very similar to that of traditional mathematics classes. Some difficulty has been encountered in the use of self-paced materials in the remedial classes, for it seems students may need more "teacher direction." In reading, the Kern District attempts to diagnose students' weaknesses with the Davis Reading Test. Various media are used to help students increase their reading speed and retention.

One basic difficulty experienced both at Lane and in the Kern District is the lack of close, continued contacts between students and teachers. Students who do not seek help are too often discouraged, and extensive efforts are needed to motivate them. Furthermore, some students are more comfortable in traditional classrooms and seem to learn better in them. The problem is determining in advance which mode works best for which students.

Multimedia Delivery Systems

Technology has affected education the most in the form of television and inexpensive audio cassette players, and community colleges will undoubt-

edly make greater use of these aids in the future. Both provide a way to bring education easily into the student's home. Television as an educational medium suffered from early experiments, which merely placed a camera in front of lecturers in classrooms. More recently, quality offerings like "The Adams Chronicles" have won acclaim for creatively presenting educational material.

As we have mentioned, the Coast Community College District strongly emphasizes the use of television, especially at Coastline, which has seen enrollments in TV courses grow from 1500 in 1973 to 8000 in 1977. One hundred thousand students in the Orange County School District view instructional programs on Channel 50, which is part of the Coast District. Clearly, this district has found television to be a cost-effective method of providing education (Scott).

The Southern California Television Consortium is directed by the Los Angeles Community College District in conjunction with KCET in the Public Broadcasting System. Other districts in Southern California can contract to offer television courses produced by the Consortium, usually five or six per term. Though not shown at prime times, the TV classes are often repeated throughout each week. The Consortium generally provides textbooks and examination materials, although each district can develop its own supplemental materials. Students are asked to complete evaluation forms for each course to assist in revisions.

Some private corporations have also been formed to develop educational offerings through television. One is ACCESS, founded by the late Dr. Peter Goldmark, the technological genius who invented the long-playing record. Central Piedmont Community College has been involved in the ACCESS approach, which employs a random-access video player containing thirty half-hour television programs in a slide-tape format. On thirty different television sets, at thirty different locations, students can at the same time be at thirty different places in the program--all broadcast from a single video player. ACCESS is now developing 180 half-hour slide-sound programs, and in the future high-speed transmission and storage hardware will allow students to use ACCESS from their home television sets.

Central Piedmont Community College also uses a telephone-access

system called "Dolly," to provide the Charlotte area with essential information concerning the college's programs and services. Dolly contains information on veterans' services, counseling, and various instructional programs. In addition, Dolly provides mini-programs and short courses for homebound handicapped students.

Twenty-nine community colleges in northern California have formed a consortium for the development and sharing of nontraditional instructional delivery systems. The Northern California Community College Learning Consortium has created courses for television, radio, and newspapers, as well as special travel courses. Those developed to date are entitled, "California Coastal Redwoods," "Northern California Historical Monuments," "History of American Radio," and "Non-Christian Religions."

To sum up this section, we might say that although the electronic media are not an educational panacea, they are important tools, and they seem to be a productive means to teach large numbers of people.

Cognitive Style

The learning theory behind this technique is that individuals have different learning styles derived from their backgrounds, interests, and aptitudes. One person might find listening to lectures the optimum method, whereas another might learn better from reading a text or watching a television program. The key, then, is to determine which styles are the most effective for each student. Then the student may select courses presented through those media. Proponents of this technique maintain that the self-awareness students gain from knowing their cognitive style is good in itself, making them realize that they have options in constructing their own learning system (Sims).

Moraine Valley Community College assesses students' preferred learning styles by asking them to respond to twenty-eight pairs of bi-polar descriptors, which essentially reveal whether the respondent is externally or internally motivated. Central Piedmont Community College also offers a cognitive style program as a student personnel service. Students and faculty members are encouraged to use a drop-in center to discuss different teaching-learning strategies and styles. (The reader may obtain research data from Central Piedmont.)

Mountain View College in Dallas began using a cognitive style approach in 1973, and more than seven thousand students have been evaluated. An estimated 12 percent of its faculty members are using the data for instructional design and development; another 30 percent use them as a diagnostic tool in the classroom. A variety of methods are employed to assess students' learning styles, including empirical observations by teachers and a self-assessment instrument, now in its fifth revision. This instrument takes approximately 45 minutes to complete and is available on a computer terminal, in a paper-pencil format, and on audiotape.

Outreach Centers

Most community colleges are discovering that traditional campuses are sometimes a barrier to student access. Physically, transportation problems and excessive commuting time often discourage potential students. And psychologically, some students have trouble identifying with a college in an unfamiliar part of town but would attend classes on friendlier "turf." To attract new students and to offer a variety of learning atmospheres, community colleges are turning to outreach centers throughout their districts.

Coastline Community College rents facilities from high schools, churches, shopping centers, and public buildings; new locations can be added easily and nonproductive locations can be easily dropped. Coastline's 17,000 students are taught by 800 part-time faculty members, many on extra-pay contracts from its sister colleges Orange Coast and Golden West. Coastline offers its own A.A. degree, but students are able to take some classes, if they wish, on regular campuses in the district. Coastline is primarily an evening college but does conduct some daytime programs, including "Emeritus Institutes" for senior citizens.

The Office of New Dimensions in the Los Angeles Community College District reaches out overseas, as far as Iceland and the Far East. It serves 30,000 students under a contract with the U.S. government in a number of countries, including the Philippines and Japan. New Dimensions also offers television and newspaper courses in the Los Angeles area. It has an Institute for Cooperative Programs which designs and conducts courses for business, industry, and government clients, usually financed under special contract and not through the regular average-daily-attendance

funding method. The Institute for Community Programs, also a part of New Dimensions, is involved in presenting lecture series and specialized workshops for community groups.

Even outreach centers can develop outreach centers. The Kern Community College District consists of 12,000 square miles of valleys, mountains, and desert. A desert division was created in 1951, primarily to serve the U.S. Naval Ordinance Test Station at China Lake, east of the Sierra Nevada mountain range. By 1973 the desert division had evolved into a separate campus, Cerro Coso Community College, and it was called upon to establish outreach centers within an area 50 miles to the south and 160 miles to the north. In such a large area with a relatively small population, outreach centers have proven to be the most productive way to facilitate student learning.

Nontraditional Learning

The packaging of traditional courses implies that the most productive learning takes place in regular classrooms and must be obtained during certain hours and over a specified length of time. For many students this may be so, but for many others the process is more of a bureaucratic necessity than a sound educational policy. Some students bring valuable experience and previous learning to a college course yet have to endure the same pace and elementary steps as other students. In an attempt to remedy this situation, many community colleges are trying to assess prior learning and give credit for it.

The Subdivision for Non-Traditional Learning at Moraine Valley Community College, described earlier, is a leader in boosting this form of productive student learning. It allows college credit through CLEP for 47 subjects in the natural and social sciences, English, mathematics, and the humanities. Special refresher seminars are offered to help students brush up for the CLEP examinations. Besides the CLEP program, the Subdivision is developing its own written, oral, and performance examinations to allow credit for a number of vocational and technical courses. Even the regular credit courses offered by NTL are given in a variety of ways, including self-paced instruction and accelerated and decelerated classes.

Most new instructional delivery systems in community colleges are still in the experimental stage. And there is no evidence yet that they will make traditional college offerings obsolete. Indeed, it appears most likely that many students will continue to accept traditional instruction as their preferred learning style. Measures of learning productivity are difficult to establish, and advocates of various learning methods will naturally generate statistics purporting to show that theirs is the best. The inevitable confusion and conflicting claims should not deter colleges from seeking more productive ways to offer instruction. At the same time, caution is advisable, and systems that promise savings should be scrutinized carefully to determine that learning, the real product of education, is not sacrificed.

CONCLUSION

Increasing productivity should be a continuing concern to all members of the college community. Naturally, escalating costs and decreasing revenues have given the topic a sudden urgency, but the greatest value of increased productivity, as we have defined it, lies in better education. Community colleges would be selling themselves and their students short if they settled for cost reductions that harmed their ability to deliver an educational program of good quality.

Effective efforts to stimulate productiveness cannot be neatly divided into administrative, faculty, and student categories, and our attempt to present models so divided inevitably revealed much overlapping. Indeed, if any single theme can be drawn from all the successful productivity programs, it is that cooperation and involvement are the prime ingredients.

We have no words of wisdom to sum up how to increase productivity in community colleges. Most of the models described here are still experimental, and the institutions involved are still engaged in evaluating them. Perhaps the best conclusion is not to conclude, but rather to guide those interested to specific colleges and individuals where more information can be obtained. Such a listing follows in Appendix B.

It should be obvious that this report, stemming from a national conference, does not pretend to include all the significant work toward productivity now being undertaken in community colleges. Further, limited time and space have prevented us from discussing all the models existing even within the colleges of the League for Innovation. Rather than a catalog, we have attempted to contribute to a dialogue. We hope that the dialogue continues, along with more efforts to make our colleges more productive.

APPENDIX A
LIST OF CONFERENCE PRESENTERS CITED IN THE TEXT

Burris, Douglas. President, Cosumnes River College, Sacramento, Ca.

Clarke, Johnnie Ruth. Associate Dean of Academic Affairs, St. Petersburg Junior College, St. Petersburg, Fla.

Cosand, Joseph. Professor of Higher Education, University of Michigan, Ann Arbor, Mich.

Hagemeyer, Richard. President, Central Piedmont Community College, Charlotte, N.C.

Hodgkinson, Harold. Executive Director, Professional Institute, American Management Associations, Washington, D.C.

Koeller, James. President, Moraine Valley Community College, Palos Hills, Ill.

Morrison, Walt. President, Rio Salado Community College, Phoenix, Ariz.

Priest, Bill J. Chancellor, Dallas County Community College District, Texas.

Robertson, Alan. President, Santa Fe Community College, Gainesville, Fla.

Schafer, Eldon. President, Lane Community College, Eugene, Ore.

Scott, Jack. Dean of Instruction, Orange Coast College, Costa Mesa, Ca.

Sims, David. President, Mountain View College, Dallas, Texas.

Slicker, Rus. Vice Chancellor, St. Louis Community College District, Mo.

Smith, Donald. President, Brookdale Community College, Lincroft, N.J.

APPENDIX B

SOURCES OF INFORMATION ON CURRENT PROJECTS

Organizational Structure

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